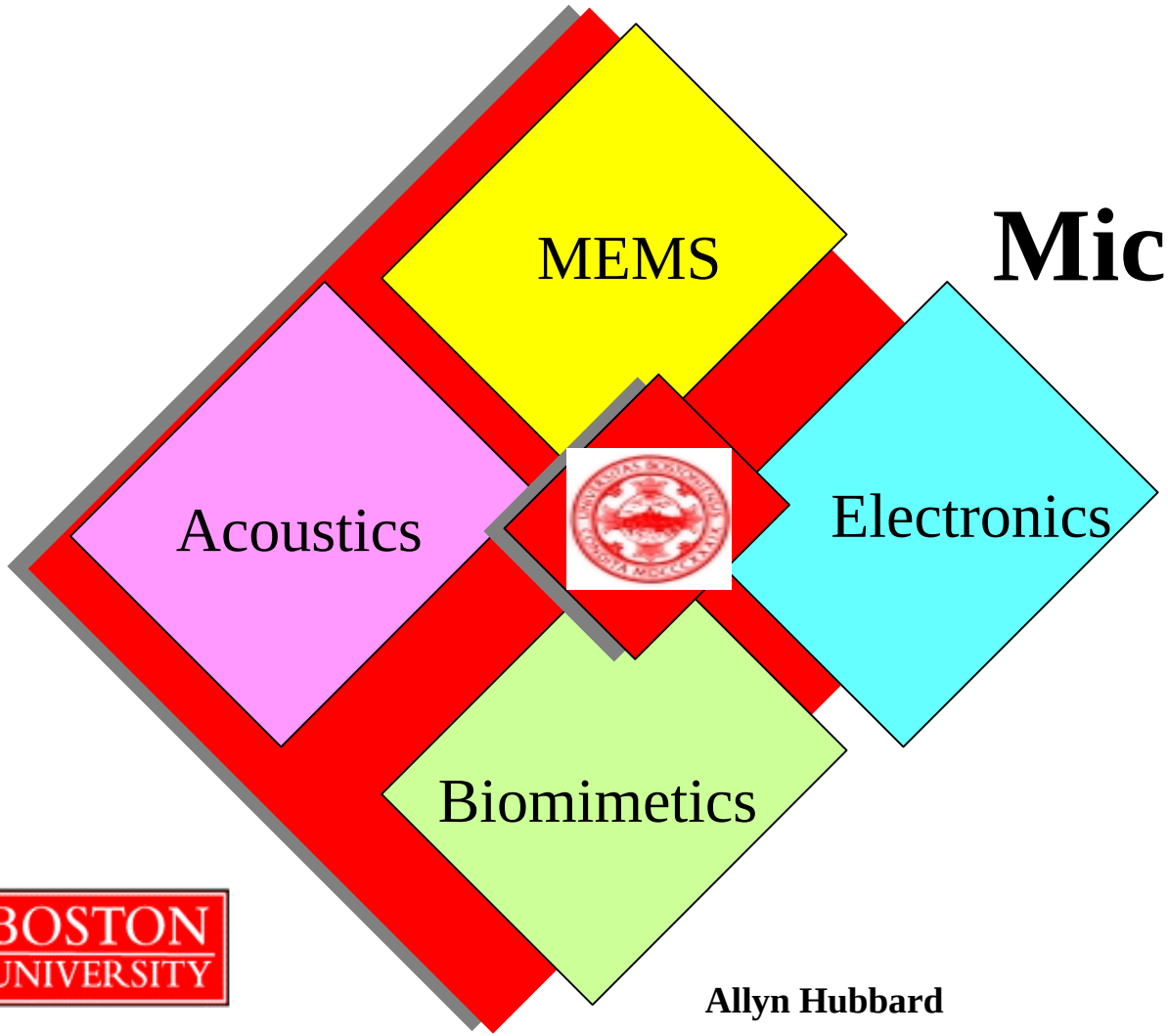
BOSTON UNIVERSITY GROUP FOR SENSORS



MicroElectronics

BOSTON UNIVERSITY

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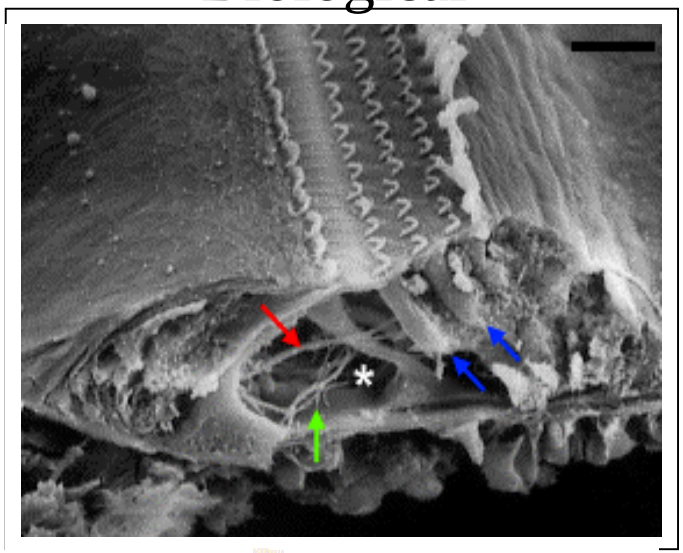
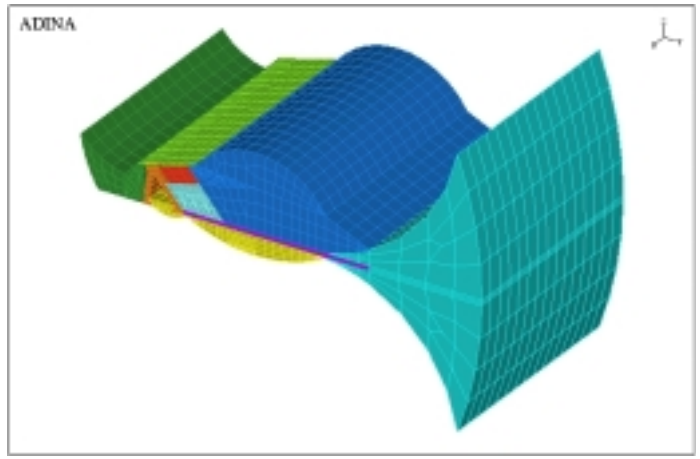
DARPA

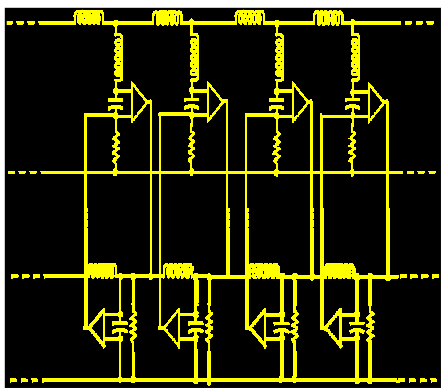
From Biology to Silicon: Ear

Biological

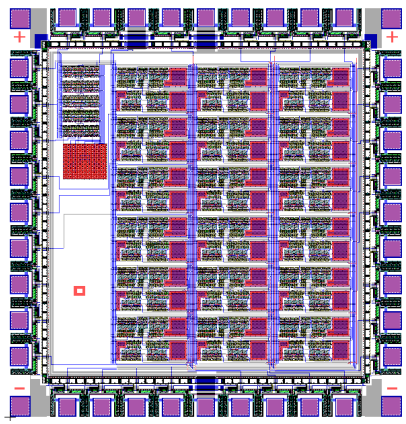


FEM Model

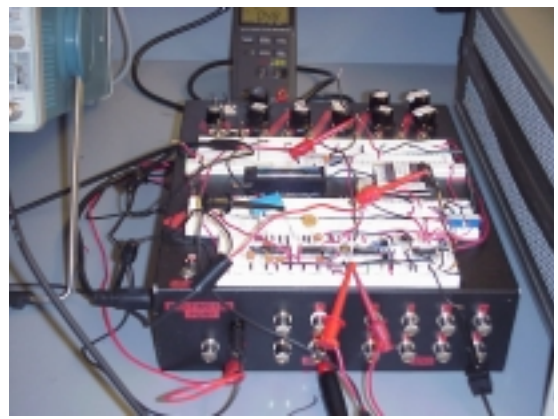




Circuit Simulation

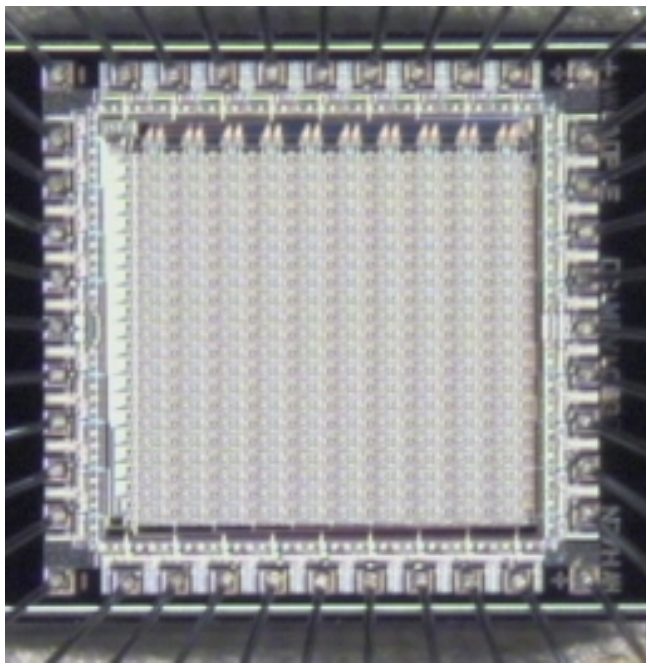


VLSI Realization

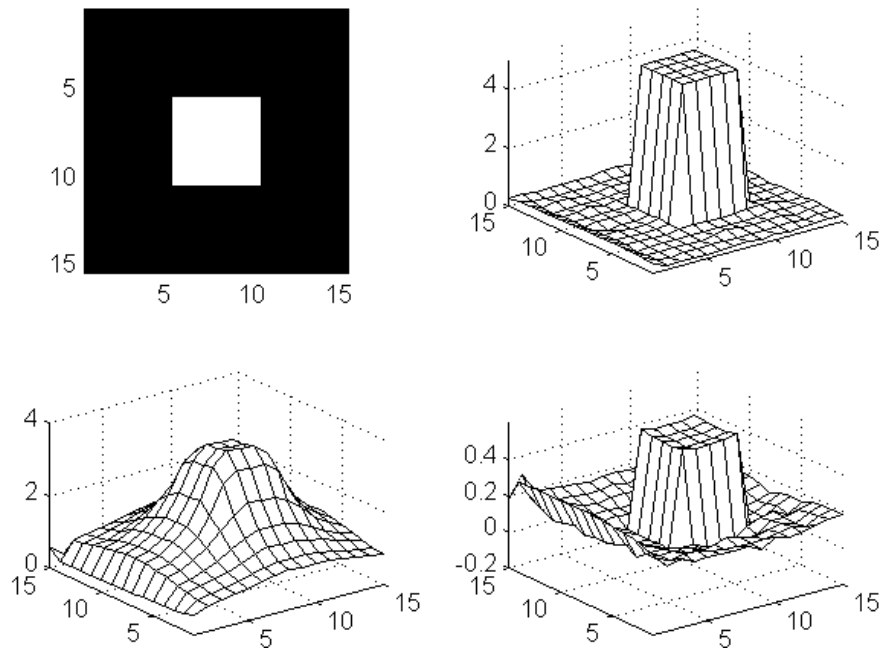


Hardware Test

From Biology to Silicon: Eye



Spatial filtering chip



Spatial filter response

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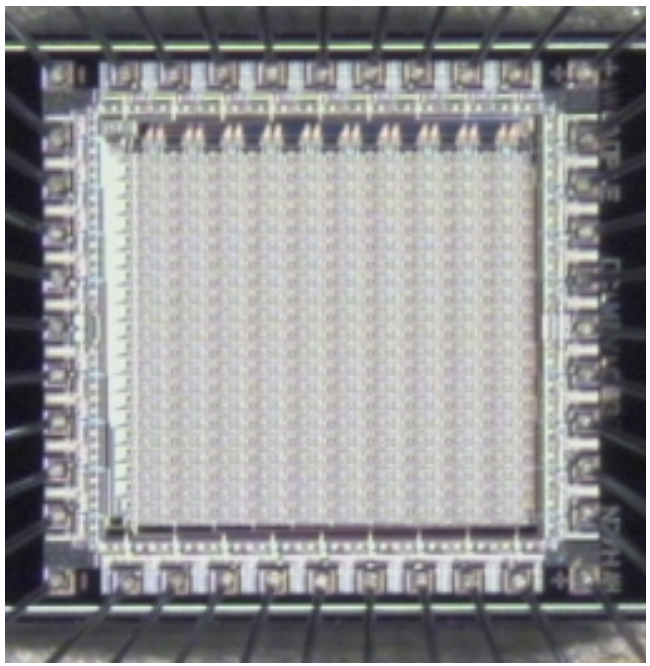
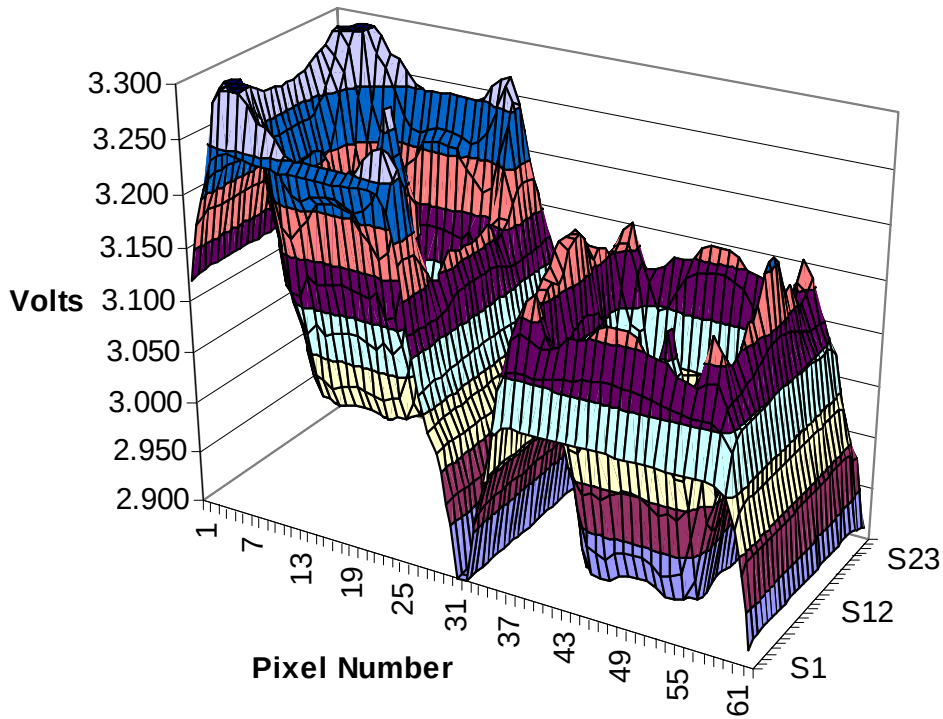
From Biology to Silicon: Eye



Spatial filtering chip



Spatial filter response

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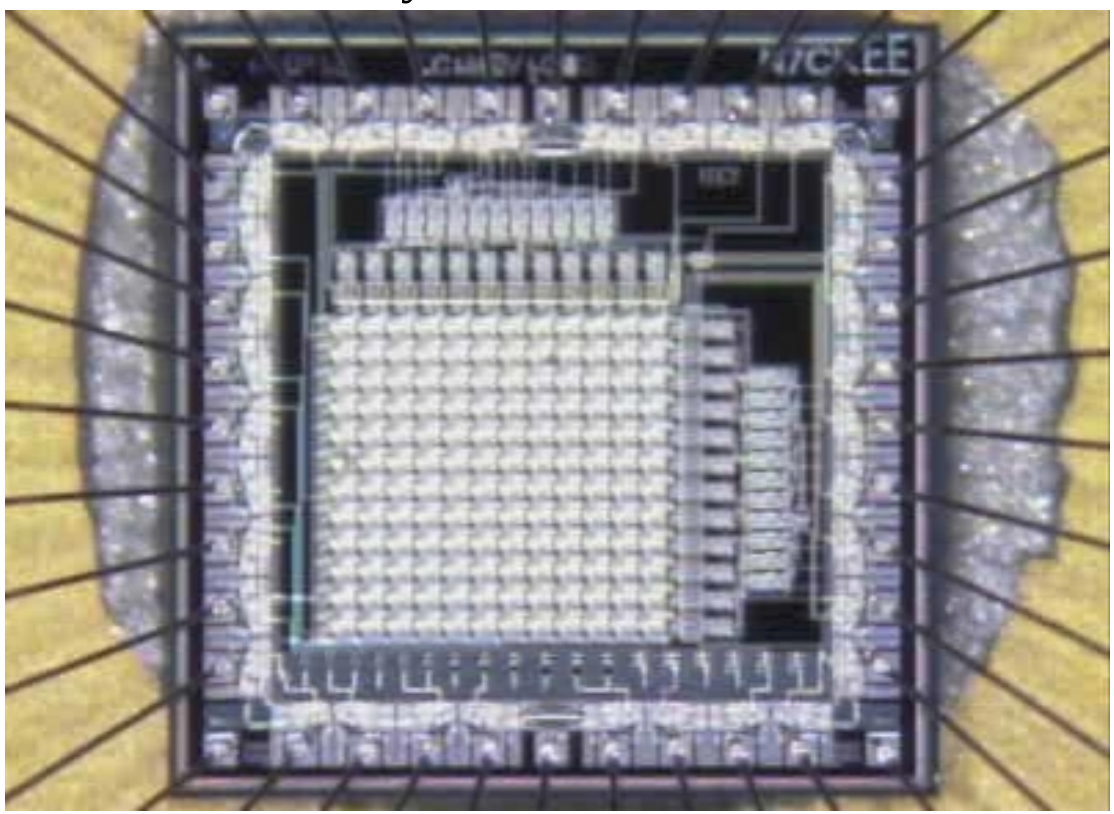
High-bandwidth Asynchronous Integrated Intermodule Pixel-to-Pixel Communication

- Analog/Digital design
- Low Power Standby
- Communicates “as needed”
- 6 MHz Maximum throughput

Array of Pulsatile Neurons



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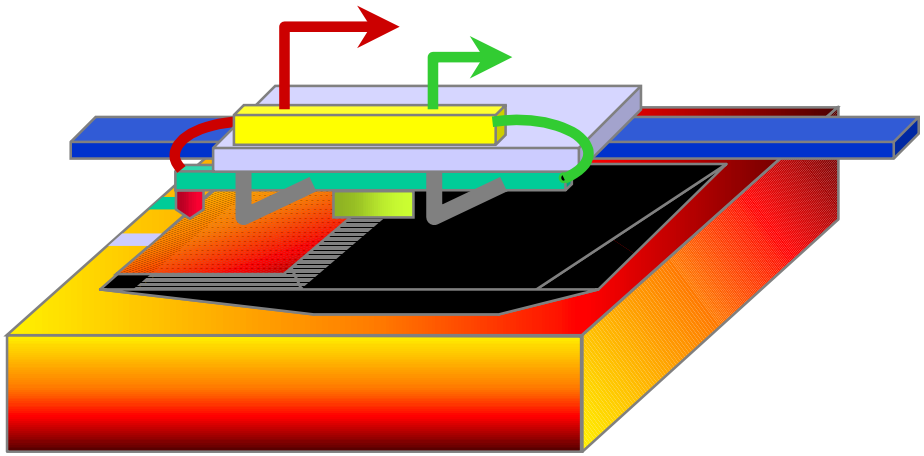
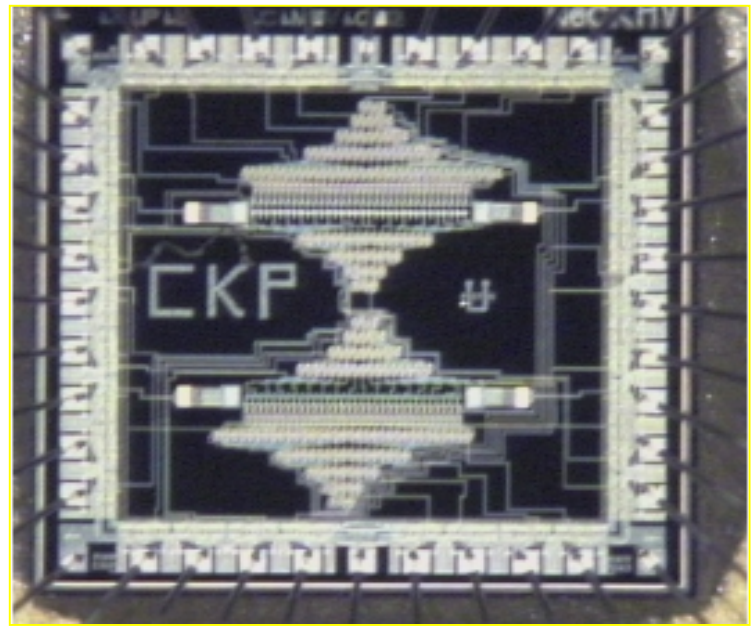
Chemistry on Silicon

Wafer-scale Chemical Analysis



Silicon micro-well
with micro-servicing apparatus

Microelectrophoresis



Microchip with two separate
electrophoresing pathways
plus sensor electronics